TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION
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Debarking Bigtooth Aspen With 2,4-D Amine Salt

Sodium arsenite has been effectively used as a bark-loosening agent for several years, but it must be handled with extreme caution because of its toxicity. Early tests in Lower Michigan indicated that non-toxic alkanolamine salt of 2,4-D and butoxy-ethanol ester of 2,4,5-T could be used to loosen bark on bigtooth aspen but were not effective on northern red oak.

In the spring of 1957 followup tests were started on aspen to compare the bark-loosening effects of the butoxy-ethanol ester formulation of 2,4,5-T, alkanolamine salt of 2,4-D, and sodium arsenite and to determine the effective period of application. A 5-percent solution by volume of 2,4,5-T in fuel oil was applied by three methods: in a frill girdle, directly on the bark with a backpack sprayer, and directly on the bark with a paint brush. The 2,4-D was applied in frill girdles at five concentrations: full strength, and diluted with water to 50-, 25-, 10-, and 5-percent solutions by volume. Sodium arsenite was applied in 40-percent water solution in frill girdles to serve as a reference of effectiveness for the other treatments. Each treatment was applied to five trees at approximately weekly intervals from May 22 through September 9.

The treatments were evaluated by determining the looseness of bark on trees felled prior to the sap-peeling season in April 1958. Sodium arsenite treatments applied through the middle of August gave the best results (table 1). Bark applications of 2,4,5-T gave good results through the first week in June, but applications in frill girdles were ineffective.

Undiluted alkanolamine salt of 2,4-D gave good results through July. A 50-percent concentration was equally effective until the last week of July, but the bark-loosening effects with the 25-percent concentration were good only with the treatments applied through June. Weaker concentrations of 2,4-D did not loosen the bark in any of the tests.

These tests show that concentrated or slightly diluted alkanolamine salt of 2,4-D in frill girdles can be substituted for sodium arsenite to loosen the bark of bigtooth aspen without appreciable reduction in effectiveness. The use of hormone herbicides, which reduce the safety hazard, may result in wider use of chemical bark-loosening techniques.

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Table 1.--Effectiveness of herbicides[1] in loosening bark of bigtooth aspen

Treatment	May		June				July					August			September
	22	29	5	12	18	25	2	11	16	26	30	7	16	30	9
Sodium arsenite in frills	Very good →													Fair	Poor
2,4,5-T:															
Brushed on bark	Good →			Fair →			Poor →					No effect →			
Sprayed on bark	2/	Good →		Fair →		Poor →						No effect →			
In frills	2/	Poor →					No effect →								
2,4-D in frills:															
Undiluted	Good →											Fair	No effect →		
50-percent dilution	Good →										Fair →		No effect →		
25-percent dilution	Good →						Fair →		Poor →				No effect →		
10-percent dilution	Fair →							Poor →			No effect →				
5-percent dilution	Fair →			Poor →				No effect →							

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[1] Very good - The bark was loose for the full merchantable height and easily removed around the entire trunk. The bark was often cracked or peeling on the standing tree.

Good - The bark was quite loose and a piece of bark 6 inches wide could be pulled off in a strip 6 or more feet long with little effort. The inner bark was often very fibrous when removed.

Fair - Bark was still tight around limbs and knots. When started with an axe, strips of bark 2 to 3 feet long could be pulled from the tree with some effort.

Poor - The bark was still alive and broke off in pieces rather than in long strips.

No effect - The bark was tight as on untreated trees; the chemical had had no effect in loosening the bark.

[2] Treatment not yet installed.